Patent Application of

Keith G. Nemitz

For

TITLE: INTERACTIVE NARRATIVE OPERATED BY INTRODUCING ENCOUNTER EVENTS.

CROSS-REFERENCE TO RELATED APPLICATIONS:

This application claims the benefit of Provisional Patent Application Ser. Nr. 60/425988, filed Nov. 13, 2002.

FEDERALLY SPONSORED RESEARCH: None.

SEQUENCE LISTING: None.

BACKGROUND

The invention relates to branching in personal computer entertainment, computer-based learning, interactive media, electric amusement devices, improvisational theater, computer generation of animated cartoons, and video games. It provides a method and apparatus for interactively invoking a sequence of events which form a narrative. It enables the player to create different paths in the narrative by invoking different sequences of events.

Interactive narratives have been defined in many different ways, (see U.S. Pat. No. 5,676,551). This invention allows users of a narrative to explore 'what if' scenarios in a manner never available before. 'What if' scenarios are the strength of the interactive narrative. Many people who enjoy linear narratives, such as books and theater, often wish the story had followed a different path. They want to know what would happen if the story had progressed differently. They wish they could choose the course of a story. Interactive narratives offer 'what if' scenarios, and thereby a powerful dimension to the art of storytelling. By opening alternate paths through a story, the user experiences more depth from the story. In linear storytelling, the main character is the prime mover of the action and the path of the story. Interactive fiction strives to place that power into the minds of the audience.

BACKGROUND: DISCUSSION OF THE PRIOR ART

Computer adventure games, one prior art, are typically operated by instructing a character in the game to perform a specific task. These instructions were either literal or contextual. A literal

instruction is given by entering sentences into a computer. For example, the player might type "kiss the dragon". The game character then performed the task. However, several difficulties arise from a literal interface mechanism. To date, computers are incapable of understanding the full range of human expression available within a typed command. Therefore acceptable commands were commonly restricted to an extremely limited subset of language. Players were often confused by what words were acceptable and what were not.

A contextual command exists within a computer adventure game's environment. The player selects an object in the environment and the game character then performs an action specific to that object. An example is, the player selects a dragon in the scene, and because the character has no sword, the character kisses the dragon. Contextual interfaces simplify computer adventure games by restricting input to objects available within the environment. However, objects in the environment can mislead the player about their purpose. One object might be used for different purposes in different contexts. Also, objects adorning the environment for aesthetic purposes might not be commands. A player who tries to use adornments as commands becomes frustrated when they do nothing. Objects that behave differently in different contexts also frustrate the player, by taking away their sense of being in control. To avoid these hassles, players often resort to the dull strategy of clicking on everything. The potential for a player controlling the story is then wasted. Other problems exist. In spacious 3D environments, a constrained view often complicates a player's task to find command objects. The view isn't necessarily pointing in a direction that contains a command object.

The methods and apparatuses of prior art computer adventure games, can be described as verb oriented. Commands given to a character in the story force an action that the character must perform. This is easy to see in text adventure games with examples like: TRAVEL north, PICK up ax, TALK to dragon. In visual, contextual interfaces, the objects selected are nouns, but the object's command always makes the main character perform an action. Consider these examples: click on door -> OPEN door; click on ax -> PICK up ax; click on dragon -> either TALK or KILL, depending upon if the main character has a sword in their hand. Prior art adventure game mechanisms focus on directly manipulating the character. Therefore, their mechanisms are based on verbs.

Another common problem with prior art adventure games occurs as players guide their character through the world. The players get lost in the world. They lose track of where they came from and how to get to where they are going. Although traversing a maze can be a form of entertainment, not every adventure game should be a maze. With this invention, the player is never lost. Discovering new areas of the world never has the downside of causing the player to worry about navigation. In this invention if players make a mistake, they can simple rewind the narrative.

Few adventure games are being made these days. The cost of creating them has increased, and the buying audience has dwindled. It is believed that the audience willing to cope with the frustrations of

adventure games did not grow enough to support the cost of developing them. Other types of interactive entertainment incorporates stories, and some offer a branching narrative, but storytelling is not their core gameplay. Typically, their core gameplay is even more difficult than canonical adventure games. Some believe these will eventually replace adventure games, if they haven't already, but such opinions ignore the vast audience of unsophisticated gamers. The invention lowers the bar of entry to interactive narratives without sacrificing their potential richness and challenge.

Another important prior art is the computer simulation entertainment. These products allow players to experience and interact with the inner workings of complex processes and entities. Examples are: the operation of a city, the interdependencies of an ant colony, or even the life of a family. These entertainments are classified as toys more often than games. Their primary entertainment value comes from playing with what makes them tick. Players are allowed to set their own goals and create their own scenarios.

Computer simulations for entertainment are commonly called 'sims'. Since sims do not compete directly with the user, or actively resist their manipulation, players feel free to experiment. These games are based upon the concept of emergent behavior, which can be described loosely as, a simulation's ability to produce results that cannot be anticipated.

A sim entertainment typically offers the player a list of commands or tools which affect the simulation. The player might ignite a fire in the city in order to witness the readiness of its fire department. The player might cause rain to fall on an ant colony to learn how it copes with the danger of flooding. The player might buy a television set for a simulated family and find, as a result, the children grow up with a large vocabulary but fear the world around them.

Unlike adventure games, controlling a sim game is not exclusively verb oriented. Sims have no central or main personality. Typical sim games are controlled with both verb and noun oriented commands. Verb commands entities specified along with the command, such as: SEND child to school bus, or order an ant to PRODUCE its gathering scent. Sim games also use noun oriented commands to affect an environment like: add a TELEVISION to a household, summon MONSTER to the city. The difference between verb and noun oriented commands can be determined by what they affect. Verb commands typically affect an entity. Noun commands typically affect an environment.

Adventure games are more story oriented than sims. Although a player might be able to tell a story with a simulation, it would be like children telling their own story with dolls rather than experiencing a narrative contained within the simulation. A storyteller would have an extremely difficult time developing stories in prior art sim products because the emergent behavior of a complex simulation conflicts with a narrative's directed flow. Currently, technology is insufficient to cost-effectively construct elaborate branching narratives with unforeseen branches.

The invention described allows simulations to become platforms for interactive narratives while simplifying their operation. It provides storytellers with strong control over their content, while enabling higher quality presentations. Players will have more flexibility and more depth of exploration than previously available. Additionally, it reduces costs sufficiently to attract a wider, less sophisticated audience, thus allowing adventure games to return competitively to the market.

The invention's operation is highly noun oriented. Simply put, a player introduces elements (nouns) into a story and discovers the result of their introduction. As the player learns how elements interact with situations, trial and error gives way to deliberation and anticipation. The process of discovering each element's usefulness can be a lot of fun. A wealth of richness and depth is achieved in the telling of these stories because the same object might be put to different uses due to situation and personality variables.

Compared to prior art, this invention exhibits its uniqueness by allowing players to interact with a story by using nouns, a first in adventure game interfaces. It also allows simulations to express story content through a predictable mechanism. Although a player is allowed to choose which element to introduce into the story, the game designer or storyteller can predetermine the list of elements the player chooses from.

This invention does not utilize U.S. Pat. No. 5,676,551, which derives a branching narrative by explicitly controlling the main character's emotions. According to that patent, the player dictates an emotion and the main character acts accordingly to it and the current situation. This invention foregoes direct manipulation of the main character. Instead the main character reacts only to the events which arise out of introducing story elements. This invention focuses on advancing a story by letting users determine the sequence of events in a narrative. Changes to the character's emotions are a side effect in this invention. However, those changes may be reflected in the character's actions during subsequent events and/or expressed as direct feedback.

In the field of interactive entertainment, there has always existed a tradeoff between control over the experience of the story and control given to the player. The invention offers a unique and useful balance of control. The invention allows the developer to predetermine the number and range of introducible elements. This is an enormous advantage when budgeting and testing a product. The invention also allows the developer to maintain control over the presentation of an event, which allows a product to be built to the highest artistic standards.

The player is benefited by being able to choose the order of events and even rewind the current sequence, thereby allowing the exploration of different sequences of events. The player is never lost nor stuck. The mechanism for controlling the sequence is as simple as a context sensitive list of available elements and a rewind command.

The invention allows static and dynamic events. A static event is one where content expressed within the event does not change due to previous events. Static events are important for maintaining a storyline's coherency. A dynamic event presents content that can change depending upon previous events. Dynamic events are crucial for inspiring and rewarding the player. This invention succeeds best when implementations provide compelling reasons to choose one path of events over another. Dynamic events invoke the player's curiosity. Basically, they answer 'what if' questions.

Between events, the simulated character or characters continue to act for narrative continuity. They should always exhibit behaviors appropriate to their character. Perhaps a main character's goal is to find the Emerald City, such as Dorothy in 'The Wizard of Oz'. Therefore, between the invocation of events, Dorothy's simulated character should be following a yellow brick road. Character simulation is important. Simulated characters can provide a strong sense of reality to character's lives. Dorothy's simulation should even eat and sleep occasionally.

Products based on this invention should present special feedback about the character's state of mind that is relevant to the narrative. This kind of feedback should be selected to inspire players as to their choices of events. Suppose a character in a fantasy story is shown to be tired and wounded, the player would then prefer to choose a 'Room at the Inn' element instead of a 'Pack of Wolves' element.

Additionally, actions occurring during the enactment of an event can be interactive. Players could be allowed to participate. Consider the example; a fight breaks out while an event unfolds. The player could be allowed to control the physical actions of the character for the duration of the fight. This sort of interaction differs from invoking events. Here is where a game designer or storyteller might reintroduce verb oriented control of the main character.

Finally, the invention is certainly unique to the field of interactive entertainment. To date, there exists no interactive narrative that branches upon the introduction of story elements. They nearly all branch on direct commands (verbs), picking conversation topics, the application of inventory items, or navigating locations.

BACKGROUND: OBJECTS AND ADVANTAGES

Accordingly, to summarize the objects and advantages of the interactive narrative user interface described in my above patent I submit the following:

The invention seeks to enable quality, interactive entertainment for the least sophisticated of narrative audiences. It offers a greater scope of control for the user with less confusion and higher quality presentations for the developer at a lower cost. This invention will enable more enjoyable experiences with interactive narratives than ever before.

SUMMARY OF THE INVENTION

This invention enables playful control over the order of events which comprise a narrative. It does this by allowing the player to introduce story elements into the narrative. An element's introduction triggers events which progress the narrative in a meaningful way. Players not only choose which elements to introduce, but they may rewind the narrative if the result doesn't appeal to them.

This invention defines an event as: what happens when an element is introduced into a story. These events produce actions or expressions which change the story's situation. Examples are: the arrival of a character triggers dialogue or other actions. The discovery of an item or information can change a situation. The attainment of a goal often leads to the promotion of new goals or a conclusion. The enactment of an event might be as long as a battle or as short as the transmission of an item.

The invention is applicable to all narratives. It can be applied to narratives of any length or subject. It is applicable to every media type supporting a narrative branching mechanism, including interactive theater.

DRAWINGS - - FIGURES

The drawing consists of a series of panels which contain scenes from a hypothetical implementation of the invention. Major arrows indicate the panels' sequence through time.

Fig. 1 illustrates the flow of gameplay using the invention.

Fig. 1A presents a static, introductory event that begins the story.

Fig. 1B shows activity occurring between the enactment of story events.

Fig. 1C presents the list of elements available for the current setting.

Fig. 1D depicts a player choosing which element will be introduced into the setting.

Fig. 1E shows the element being introduced into the story.

Fig. 1F represents the event being enacted due to the element's introduction.

Fig. 1G shows the result of the events.

Fig. 1H indicates how the narrative will be changed for the next cycle of gameplay.

DETAILED DESCRIPTION - - FIG. 1 - ILLUSTRATIVE EMBODIMENT

The invention can be illustrated in a single cycle of gameplay. This illustration contains a sequence of scenes from a hypothetical implementation of the invention. It is only a representative illustration, it does not depict a recommended or optimal implementation.

The sequence begins (Fig. 1A) with an entry point that initializes cycles of gameplay. Similarly, an end scene, which exits and terminates gameplay, can be inferred to occur as a result of an event. Proceeding clockwise, subsequent scenes show how the story progresses through a single cycle of gameplay. The first panel shows a forest setting, Little Red Riding Hood's Mother, and the main character, Little Red Riding Hood herself.

A sample interface is shown (Fig. 1B) during general execution of the game. It consists of three primary sections: the presentation section, the goal section, and the feedback section. The presentation sections shows the simulated character acting, within the environment, between events for story continuity. The setting shown is a forest setting. The goal section displays the character's current goal, represented iconically. The feedback section highlights the character's facial expressions.

With the story underway, this sample implementation offers (Fig. 1C) the first list of elements a player can use to interact with and branch the narrative. There are three choices offered for the current setting: Wolf, Woodsman, and Berries. Each element in the list is depicted iconically and labeled. The simulation continues while the list is presented. The goal and feedback sections are unchanged.

From the list, the player then selects (Fig. 1D) which element will be introduced into the environment. A gray highlight shows the selected element. In this case the player has selected the Wolf element. Nothing has changed in the goal and feedback sections. These sections are not shown.

Next, the element's actual form is introduced (Fig 1E) into the game environment's presentation. The Wolf's character confronts the main character. The goal and feedback sections are unchanged.

When an element introduced into the story, the invention enacts an event (Fig. 1F). In the presentation section, the Wolf speaks with the main character. Nothing has changed in the goal and feedback sections.

As an event concludes (Fig. 1G), the actions expressed within it will usually have changed the story. In the presentation section, the Wolf has frightened the main character away. The goal section indicates the main character's goal of getting away from the Wolf. The Feedback section displays her mask of fright.

The cycle begins to loop at this point. Yet changes from the result of an event (Fig. 1H) are carried forward. The mask of fright represents her new state of heightened fear during the next cycle of gameplay.

OPERATION - - Fig. 1

All branching narratives contain a cycle of gameplay where the storytelling mechanism waits for a user's input and then reacts to it. This invention operates by a type of input new to branching narratives. It offers the simple but powerful mechanism of allowing players to introduce story elements into the narrative environment. Each element triggers an event in the story that arises from interactions of the current situation, the environment and characters present, and the element that has been introduced.

Additionally, most stories begin and end with static events that occur outside of the main cycle. This invention does not improve upon those established conventions. The figure (Fig. 1A) begins the story of Little Red Riding Hood. It depicts the girl's mother sending her off to visit her grandmother.

Better implementations of the invention will transition from scene to scene of the gameplay cycle as seamlessly as possible. Continuity of storytelling is important. Therefore, the simulated characters and environments should continue to play throughout the cycle. We see Little Red Riding Hood walking (Fig. 1B) through the forest. She is intent on going to her grandmother's house, as the goal section of the interface clearly indicates with a picture of her grandmother's house.

In this sample implementation, the game presents a list of story elements (Fig. 1C) between events. The mere presence of the list does not need to pause the simulation. The player is allowed to take as much time as he likes before selecting which event he will introduce. Narrative continuity proceeds as the decision is contemplated.

When the player decides which element will be introduced into the story (Fig. 1D), he selects his choice from the list. The story continues to play throughout his interaction with the list. Here, the Wolf is picked to be the story element Little Red Riding Hood will encounter next. Other choices would branch the narrative in different story directions.

Introducing each element into the story should be as believable as possible. The Wolf might step out from behind a tree (Fig. 1E) or enter the scene from offstage.

Once the element has been introduced, the event it triggers is then enacted (Fig. 1F). Here, the Wolf simply greets Little Red Riding Hood in the forest.

An event, once triggered, enacts until it is resolved (Fig. 1G). Its actions usually changes the story in a significant way. In Fig. 1G, Little Red Riding Hood becomes so frightened by the Wolf's presence she runs away, temporarily abandoning her goal to visit her grandmother. The feedback section highlights that fear by showing her face's mask of terror.

That fear (Fig. 1H), carries forward into the next cycle of the game. Even her simulacrum might walk very timidly through the forest until the next element is introduced into the story.

Although the description above contains many specificities, these should not be construed as limiting the scope of the invention but as merely providing illustrations of some of the presently useful embodiments of this invention. For example, the presentation section might be a scrolling page of text that describes the events in written language, as if the implementation were a book that reacted to the reader. It might be an actual stage with real actors calling out element lists and reacting to the audience's choices.

Thus the scope of the invention should be determined by the appended claims and their legal equivalents, rather than by the examples given.

DETAILED DESCRIPTION OF THE INVENTION

i. Introduction

This invention provides a system that enables simple but rich navigation of interactive narratives. It enables an ease of use significantly better than any prior art. Its mechanism is truly unique and beneficial in its field. With the invention, one or more people can participate in an interactive: motion picture, television or audio program, live theater, or a computer-based or computer-generated story. It lets participants determine the course of a narrative. Players are able to explore the events of a story (in the form of motion picture images, television images, live theater, audio, computer-based images, or computer-generated images) with greater control and less confusion than ever before.

ii. Purpose

The purpose and use of this invention sits squarely in the field of entertainment. It is a mechanism which opens up narratives for exploration at the cause and effect level of a story's sequence of events. The invention can be implemented by any device or performer that 1.) transmits a narrative and 2.) accepts input that controls its transmission.

The invention also overlaps the fields of education, simulation, counseling, and therapy, similar to how regular storytelling overlaps them, but the invention offers unique benefits for those fields.

iii. Comments on Style

The description will show, in sections, how to use the claims and prior art to create this invention. Since interactive narratives are largely artistic endeavors, a great range of variations must be allowed. However, all implementations will use a significant portion of the claims. Claim 1 is essential. Some of the claims are considered fundamental to the invention, and others will be optional. Each claim will be labeled as one or the other.

Each claim will be discussed as to its merits over previous methods.

Each step will be demonstrated by an example. All of the examples will be taken from a hypothetical implementation of the story of Little Red Riding Hood.

1. Breaking a story down into elements.

For the purpose of this invention, we define a story as a sequence of events. We define an event as a continuous period of activity, involving single or multiple characters, whose actions revolve around a specific subject or object. For the purpose of this invention, we define an element as one of those specific subjects or objects. The invention allows for additional storytelling, presented between events for continuity.

As per Claim 1.c., developers should identify all elements that could exist within the story. As per Claim 4, developers should create distinct symbols, labels, phrases, or other identifiers for each element. These identifiers will be used by the player to control the narrative. Compared to prior art, the introduction of elements is a powerful tool for advancing a story and affecting the main character or characters. No other prior art device uses the introduction of elements to trigger events as the primary control system for advancing an interactive narrative. Introducing elements is fundamental to this invention.

For example, if we examine the tale of Little Red Riding Hood, we identify the following story elements.

- Mother at Home.
- Berries in the Forest.
- The Wolf.
- Grandma's House.
- Grandma.
- The Woodsman.

These elements are the primary building blocks of the story of Little Red Riding Hood. The invention uses them to trigger events which progress the narrative. In our example, Little Red Riding Hood, is not considered an element. She is the main character with whom the player interacts by introducing elements into her simulated, narrative environment. It is her story players are playing with. Introducing her into her own story is best handled automatically at the story's beginning.

Periods of the narrative are presented between triggered events, for the purpose of tying them together. A reoccurring example is: Little Red Riding Hood simply walks in the woods, from one event to the next. Walking in the woods is the continuity mechanism that binds together events in the forest. (see goals in subsection 6)

2. Introducing the Narrative to the Player.

Nearly always, a narrative begins by introducing the main character and setting up the initial situation. It is typically presented automatically, as are the introductory sequences of prior art. By beginning each game the same way, players can be certain that they are starting at the beginning. This provides a comfortable foundation for their explorations. As per Claim 1.a., the simulated environment and (as per Claim 1.b.) the simulated character or characters are typically introduced here as well. These two pieces of Claim 1 are common to prior art, and are necessary for every branching narrative.

In our example, when the game begins, the player is greeted by the static event of the mother sending her daughter into the woods to visit her grandma.

3. Using Settings to Constrain Combinatorial Explosions

Every successful branching narrative must cope with the problem of combinatorial explosion. Combinatorial explosion in this invention would result when there are so many different ways to order the introduction of story elements, developing all of the resulting events would prove too expensive. Therefore, one of the invention's mechanisms must let designers limit the combinations of element introductions. This allows cost effective development. Fortunately, narrative structure provides many natural and effective means to constrain events. They are scenes, locales, chapters, acts, or settings. This invention uses the term 'setting' for these structures.

As per Claim 3, the invention uses settings to limit the events that can happen during those segments of the narrative. For a given setting, the developer, or the simulation itself, decides which set of elements will be available to the player during that setting. The use of settings to limit elements

available in a narrative is unique to this invention. Although, not required for this invention, settings will be used frequently for limiting the combinatorial explosion of potential results.

There are two settings in the tale of Little Red Riding Hood, 'The Forest' and 'Grandma's House'. In our example, some elements will be allowed only in the Forest. Other elements might be allowed only in Grandma's House, and some elements might be available in both settings.

- Forest
    - berries
    - wolf
    - woodsman
    - grandma's house

- Grandma's House
    - wolf
    - grandma
    - woodsman

In this example, the elements available in each setting have been predetermined.

4. Simulating the Main Character or Characters.

The construction of this invention requires goal driven simulations of the main character or main characters. This document does not describe how to implement a character simulation since that is considered prior art. Here, in sections 4, 5, and 6 we describe using such a simulation in a manner unique to this invention, as per Claim 1.b.

It's a lot of fun to play with a puppet dancing to strings on your fingers. It makes players feel powerful and in control. It's even more fun to have a pet that plays with the things you give it. Unlike current adventure games, with this invention, players do not directly control the character's steps or actions. Players influence the actions of the character by introducing elements into a setting which trigger events significant to the story.

With this invention, whenever an event is triggered, enacted, and resolved, the simulated characters can change. Their emotions, goals, physicality, and personality can all change as a result of an event. This supports a narrative's common practice of revealing how a character changes during a story. In implementations of this invention, simulated characters should directly reflect their changes. In order to do that, this invention requires two capabilities from the simulations' implementation.

4.a. The character simulation must provide feedback about its physical and emotional states. Exactly which types of states depend upon the story being told. (Detailed in section 5, below.)

4.b. The character simulation must always have a goal. It must be trying to accomplish that goal, perhaps with occasional, character oriented sidetracks. The player should always be informed of that goal. (Detailed in section 6, below.)

In our example, Little Red Riding Hood is implemented as a self motivated, simulated personality that acts like a little girl. By design, she will automatically seek to accomplish a goal.

- example of 4.a. She shares her emotional states by what she says, by her animations, and by visual meters that indicate internal states.

- example 4.b. When Little Red Riding Hood is trying to get to grandma's house she will be walking in the forest in a specific direction. To demonstrate her character's youthful nature, she occasionally chases a butterfly but resumes walking towards her goal immediately thereafter. Her goal, a picture of her grandmother's house is displayed in the goal area of the user interface. (Fig. 1-b)

5. Describing Feedback in Detail.

Players will need information they can use to decide when each element should be introduced. As per Claim 10, implementations of this invention should strive to provide enough feedback about the character or characters for the player to anticipate which introductions will lead the character towards their desired goal. Bear in mind a player's goal may be very different from a character's goal. Good feedback also helps players relate with the characters, (refer to U.S. Pat. No. 5,676,551).

Feedback can be expressed in a variety of ways, some examples are: facial expressions and/or body language of the character, voice inflection, audible commentary, or visual and/or tonal meters. The kind of character feedback supplied is more important than its presentation. Feedback should be picked for its relevance to the narrative. Character simulations used for this invention should express the widest possible range of human emotions. In addition, this invention singles out particular characteristics for extra attention. Targeted feedback helps players navigate the story and understand it at a different level. Similarly, film makers choose specific color schemes and lighting to highlight specific aspects of the emotions of principal characters. This enhances the actors who, of course, express full human emotions within their work.

In our Little Red Riding Hood example, we might want to specifically highlight the girl's fear and whom she trusts. Little Red Riding Hood is a story about fear and trust. To express her fear we select body language. Whenever Little Red Riding Hood is afraid, she tiptoes and constantly watches all around her. To express her trust, a subtler emotion, we might show a meter on the screen, indicating the amount of trust she feels for each character she meets.

6. Describing Goals in Detail.

Because stories flow from one event to the next, the invention needs to provide a mechanism that facilitates continuity between events. This is why our character simulation should be goal oriented, as per Claim 11. The character should always be striving for something, an object, a person, a place, or a situation. Implementations should supply feedback about the character's current goal. Commonly, a character will seek one goal at a time. That goal may change as a result of an event, but it doesn't have to. This mechanism keeps the character active and directed while players take time to choose events or simply enjoy the spectacle, as per Claim 8. Goal seeking provides anticipation and suspense for the audience's enjoyment of the story. By informing players of the character's goal, they are offered a meaningful goal for their own explorations. Goal seeking is fundamental to this invention.

Only one or two goals make sense for the brief fable of Little Red Riding Hood. Primarily, she wants to get to grandma's house. Along the way, she might want to gather some berries. After she's arrived, her goal may be to comfort her grandma. Notice the event of arriving at grandma's house triggers a new goal. Upon achieving her goal, Little Red Riding Hood automatically begins a new goal. In this case, arriving at grandma's house triggers the new goal of wanting to comfort her grandma. Some goals, when achieved, will end the story.

7. Generating a List of Elements

This section describes heart of this invention. To recap the previous sections: The player has been introduced to a situation and its world, and she or he is watching simulated characters acting within a setting. Now it is time for the player to influence the story. As per Claim 1.d., the player will be given a list of story elements they can use to branch the narrative. Introducing elements into the simulation generates events which advance the story. Event operated branching of a narrative is unique to this invention. It is fundamental to this invention.

How a list of elements is generated is important. As per Claim 2, the invention provides two methods for generating the list. The list could be pre-generated, as provided in our Little Red Riding Hood example. The list could also be generated programatically, based upon the narrative' state. A

device that determines the list at the time of presenting the list is programatically generating the list. A performer who determined the list during his or her performance would be 'winging it'. Automatically generated lists should be based upon the current situation and directions the story might head. One method might prune an exhaustive, predetermined list. A very sophisticated storytelling engine might create new characters, objects, activities, and/or places to present as event triggers.

Controlling the list of events during the narrative is an essential aspect of the invention. One method of constraining combinatorial explosions, the setting, has already been described. The invention works best without too many events for any one setting. List construction is another tool for limiting permutations of story branches and therefore, development costs.

At the beginning of Little Red Riding Hood, when she is plodding cautiously through the forest, the list generated for the player's consideration consists of:

- wolf
- woodsman
- berries

In this example, the 'Grandma's House' element is pruned from the pre-generated list. (Fig. 1-c) This forces the player to pick some other kind of encounter before Little Red Riding Hood reaches Grandma's house. Consider it a primitive example of a programatically generated list. In other words, the list changes depending upon whether or not the player has already invoked an event.

8. Displaying the Element List and Responding to the Player's Selection.

Once a list of story elements has been generated, the apparatus either interrupts the player with the list or waits for the player to request the list. As per Claim 1.e., the player simply selects an element from the list to interact with the invention. While the operation of selecting an element is trivial, determining the right element can be quite challenging. Players will quickly figure out how they want the story to progress. They will enjoy discovering how each element is likely to influence the story.

Choosing an element which triggers a desired event is rewarding. Choosing an element that produces an undesirable event is the penalty for not understanding the character or situation. The player is motivated to explore other options. An event's immediate enactment, after choosing an element, is more rewarding than wandering around (often lost in) the large landscapes typical of prior art adventure games.

The purpose of this invention is to create experiences where an audience can easily explore the full richness of an interactive story and the characters within. The best implementations will supply, in their display of elements, clues to an event's resolution. By observing the character's feedback, the user will begin to anticipate how that character will react to certain stimuli. However, interesting surprises could always be a lurking possibility.

In Claim 9, the invention provides powerful tools to modify the simulation and advance the narrative. The tools are elements introduced into a story which cause characters to react, interact, and change. As per Claim 1.f, the outcome of every event potentially modifies: characters, objects, the environment, and the situation.

This invention supports game play where the sequence of events changes, as per Claim 1.e. If a narrative's events occur in one sequence, then the story's outcome is one experience. Different sequences of events could produce different outcomes. By offering players a set of tools in the form of story elements, they can create the experience that pleases them most.

In the example, an element list will be offered after each event resolves. The list appropriate for the current situation is displayed. From the list players would make their selection. Below are the example's elements with a brief description of their enactment.

If the Little Red Riding Hood is in the Forest setting, the list contains:

- wolf:
  - if she is afraid: she runs away.
  - if warned: she fools the wolf by claiming the woodsman has broken his ax.
  - otherwise: the wolf sweet talks her and learns grandma is alone.
- woodsman:
  - warns her about wolves.
- berries:
  - she goes on a berry hunt that makes her less afraid. Player participates during event.
- Grandma's House:
  - if the wolf is fooled: show wolf's demise and end story with happy grandma.
  - otherwise: plays a static scene of arriving at the house and entering it.

If Little Red Riding Hood is in the Grandma's House setting, then this is the list:

- wolf:
  - discovers wolf in grandma's clothing and is chased around the house.
- woodsman,
  - if wolf is chasing her: he dispatches the wolf.
  - otherwise: he congratulates her on arriving safely and doesn't return.

9. Resolving an Event. (Static and Dynamic)

Once an element is introduced, the event it triggers must then be enacted. How an event plays out is entirely up to the developer. Respecting this invention's definition of an event, the playing or resolution of it should advance the story significantly. A person or creature is met and engaged. An item or sight or sound or idea meaningful to the plot is found, pondered, or otherwise reacted to. Perhaps a trial is encountered which must be overcome. There are too many possibilities to list here, but unremarkable actions or happenstance's might be useful only adornments or as stylistic flavor. Unremarkable events should be enacted sparingly if enacted at all. By virtue of enacting an event, the narrative is advanced, as per Claim 1.g.

The enactment of an event may be static (as per Claim 5.). What occurs during a static event simply repeats each time it is triggered. Characters should not be changed by a static event's outcome.

An event may resolve dynamically(as per Claim 6.). The enactment of a dynamic event could change from one invocation of the event to another. How dynamic events resolve should depend upon the sequence of events that transpired prior to its invocation. The same sequence of events prior to a dynamic should result in the same enactment of it. Dynamic events will often result in a change to the character, usually expressed through feedback mechanisms. (Feedback was discussed in section 5.)

The most important feature of this invention is that an event should change something in the narrative, as per Claim 9. What might change includes: the main character(s), other characters, the environment, the list of elements available, and/or other aspects of the story. An event doesn't have to change the narrative, but most events should. They keep the player's experience interesting. In prior art adventure games, it was very difficult to change the nature of a character. Players were given absolute control over the character's actions. With this invention, characters will be able to react more like characters in a story. Therefore the invention is able to tell stories better than prior art.

In our Little Red Riding Hood example, if the main character is still in the Forest, and the player introduces the 'berries' element, the game would proceed to move Little Red Riding Hood until she reaches a patch of berries in the forest. Since the important part of event resolution is the changes it bestows upon the narrative, we should define an initial situation for Little Red Riding Hood. Let's say that upon leaving home, by herself for the first time, she begins the story very afraid of the forest. Her face and actions (as mentioned in section 5) indicates this fear. When she encounters a patch of berries, she remembers that the forest can also harbor nice things. Nice thoughts soften fears. So, upon picking some berries she begins to feel a little less afraid. Therefore, two things have changed in the narrative. First, she now has a nice basket of berries to give to her grandma, and second, Little Red Riding Hood feels less afraid. Perhaps her fear is lessened to the point where, when the wolf encounter is enacted, the girl listens to the wolf instead of running away.

10. Allowing Other Interactions

Game designers should consider the amount of interactivity a player is allowed during event enactment, as per Claim 7. It has been mentioned previously, that in a fight situation, the player might be allowed to control the character's actions during the fight. Many times, in prior art adventure games, allowing full, player control over the actions of the characters proved very useful and fun, and this would be a lesser invention if it did not allow absolute player control in useful and fun situations. Therefore, within the event itself, sometimes it is best to let the player completely control the actions of the character. However, only the final resolution of the event should affect story. Interactions during the event should not affect the character's personality, goals, or the situation.

There is a fine point to be made here. Although the outcome of an interactive event could be determined by the player's actions, only the final result of the event should affect the story. A player might win or lose a fight a dozen different ways, but only the final result, the win or loss, should affect the story. The methods employed to gain the end of the event do not have to, and probably should not, affect the story. If it did, it would create another opportunity for a combinatorial explosion of outcomes.

An interactive story of Little Red Riding Hood might contain a simple game when she encounters berries. The event specific game might be a hunt for enough berries to fill her basket. Once the basket is full, event resolution concludes and the narrative resumes. These extra interactions improve the player's enjoyment, drawing them closer to the story by involving them in the character's experiences.

11. Rewinding the Narrative

The next component of the invention is optional but highly recommended. As per Claim 12, implementations of this invention should allow the player to change their mind about the sequence of events that led up to a state of the narrative.

In simple language, the player is allowed to back up the story. For this to be possible, the device or performer must offer a mechanism the player uses to rewind the story. Such a mechanism might move the story backwards by the amount of a single event, a single setting, perhaps by chapter, act, or other traditional groupings of events, as per Claim 13. It must be able to restore the state of the narrative to what it was before an event, or multiple events, resolved. Once the story has been rewound, the player is able to choose an alternate sequence from the regressed state, as per Claim 14. He or she can then create a different narrative out of the elements offered. This is the mechanism that lets people explore and play with a story.

Additionally, as per Claim 15, some implementations of this invention could save the path of the current sequence of events to long term storage such as a hard disk or magnetic tape. Once stored, these highly personalized stories could be shared with others and shown like a video tape. The stored sequences could also be reloaded into the enabling device and allow the player to continue exploring the narrative.

In our Little Red Riding Hood example, suppose the player picked 'Wolf' to trigger her first event. As the encounter proceeds, the player learns that Little Red Riding Hood was so afraid, walking alone in the woods, she runs away from the wolf before it has a chance to talk to her. As a result, Little Red Riding Hood's fear grows even greater. Using the rewind feature, the player backs up the story to the beginning and picks for the first event, 'Encounter Berries', in order to calm the little girl until she is brave enough to talk to the wolf.

A. Summary

This detailed description has explained how to use the claims of this invention to create a branching narrative. It has demonstrated how the claims are unique and has discussed their advantages over previous methods. It has provided a complete example of implementation.

Begin with a narrative that can be described as discrete events which occur in a story's principle character or characters. Define settings to limit event branches. Determine which story elements will trigger the events in each setting. Build simulated characters which react to the elements according to each character's nature. Allow players to determine the sequence of events for a setting. Provide feedback about characters and the situation which players can consider when they choose elements. Move from setting to setting as the narrative allows. Let the simulated characters and environment act between events for continuity. Allow users to interact in other ways, during event resolution, to add depth to the gameplay. Let users rewind the narrative, and let them explore alternate event sequences.

The example of Little Red Riding Hood has illustrated a potential implementation of this invention's claims. It has also indicated the depth possible in a branching narrative, even for a story as simple as a children's fable.